

We claim:

- as acrylic acid  
tetraethylammonium  
d. alkyl  
methyl  
surface  
of glass  
after*
- WLF rough surface x 10<sup>4</sup>*
1. Water-insoluble water-swellaable hydrogels coated with steric (or electrostatic spacers, characterized by the following pre-coating features:
- Absorbency Under Load (AUL) (0.7 psi) of at least 20 g/g,
  - Gel-strength of at least 1 600 Pa.
- 10 2. Hydrogels as claimed in claim 1, characterized by the following post-coating features:
- Centrifuge Retention Capacity (CRC) of at least 24 g/g,
  - 15 - Saline Flow Conductivity (SFC) of at least  $30 \times 10^{-7} \text{ cm}^3/\text{s/g}$  and
  - Free Swell Rte (FSR) of at least 0.15 g/g and/or Vortex Time of not more than 160 s.
- 20 3. Hydrogels as claimed in claim 1 or 2, wherein the steric spacers are selected from bentonites, zeolites, active carbons and silicas.
- micro  
H<sub>2</sub>O*
4. Hydrogels as claimed in claim 1 or 2, wherein the electrostatic spacers are cationic polymers.
- cg  
ep  
ad*
5. Hydrogels as claimed in claim 3, wherein the steric spacers are applied to the surface of the hydrogel in an amount of from 0.05 to 5% by weight, based on the total weight of the coated hydrogels.
- 30 6. A water-absorbent composition containing water-insoluble water-swellaable hydrogels as claimed in any of claims 1 to 5.
- micro  
multiple  
layers*
- 35 7. A water-absorbent composition as claimed in claim 6, wherein the water-swellaable hydrogels are embedded as particles in a polymer fiber matrix or an open-celled polymer foam, fixed on a sheetlike base material or present as particles in chambers formed from a base material.
- 40 8. The process for producing water-absorbent compositions as claimed in claim 6 by
- preparing the water-swellaable hydrogels,
  - 45 - coating the hydrogels with a steric or electrostatic spacer and

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- introducing the hydrogels into a polymer fiber matrix or an open-celled polymer foam or into chambers formed from a base material or fixing on a sheetlike base material.

- 5 9. The use of water-absorbent compositions as claimed in either of claims 6 and 7 for producing hygiene articles or other articles for absorbing aqueous fluids.
- 10 10. Hygiene articles containing a water-absorbent composition as claimed in either of claims 6 and 7 between a liquid-pervious topsheet and a liquid-impervious backsheet.
- 15 11. Hygiene articles as claimed in claim 10 in the form of diapers, sanitary napkins and incontinence products.
- 20 12. The method for improving the performance profile of water-absorbent compositions by enhancing the permeability, capacity and swell rate of the water-absorbent compositions by use of water-insoluble water-swelling hydrogels as defined in any of claims 1 to 5.
- 25 13. The method for determining water-absorbent compositions possessing high permeability, capacity and swell rate by measuring the Absorbency Under Load (AUL) and the gel strength of uncoated hydrogels and determining the Centrifuge Retention Capacity (CRC), Saline Flow Conductivity (SFC) and Free Swell Rate (FSR) of the coated hydrogels for given water-absorbent compositions and determining the water-absorbent compositions for which the hydrogels exhibit the property spectrum mentioned in claim 1 or 2.
- 30 14. The use of water-insoluble water-swelling hydrogels as defined in any of claims 1 to 5 in hygiene articles or other articles for absorbing aqueous fluids to enhance the permeability, capacity and swell rate.
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